DOCUMENT RESUME

ED 086 933 CG 008 644

AUTHOR	Werts, Charles E.; Watley, Donivan J.
TITLE	Paternal Influence on Talent Development.
INSTITUTION	National Merit Scholarship Corp., Evanston, Ill.
PUB DATE	70
NOTE	18p.;NMSC Research Reports, v6 n4
AVAILABLE FROM	Research Division, National Merit Scholarship Corporation, 990 Grove Street, Evanston, Illinois 60201
EDRS PRICE	MF-$0.65 HC-$3.29
DESCRIPTORS	*Achievement; Cocurricular Activities; College Freshmen; *Fathers; *Occupations; Parent Child Relationship; *Parent Influence; Research Projects; Skill Development; *Talent Development

ABSTRACT

A sample of college freshmen (N=127,125) was grouped by father's occupation. Fathers' occupations were then compared in terms of the probability of the sons and daughters having attained various types of achievements--scientific, artistic, oral-leadership, musical, and literary--in high school. The results indicated that sons and daughters excel in particular skills which the father uses in his occupation. (Author)

ED 086933

NMSC

U.S. DEPARTMENT OF HEALTH
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

1976: volume 6, number 4

Paternal Influence on Talent Development

Charles E. Werts and Donivan J. Watley

NATIONAL MERIT SCHOLARSHIP CORPORATION

NATIONAL MERIT SCHOLARSHIP CORPORATION

Edward C. Smith, President

The National Merit Scholarship Corporation was founded in 1955 for the purpose of annually identifying and honoring the nation's most talented youth. Merit Scholarships, which are awarded on a competitive basis, provide financial assistance that Scholars use to attend the colleges of their choice.

The NMSC research program was established in 1957 to conduct scholarly research related to the source, identification and development of intellectual talent. NMSC Research Reports are one means of communicating the research program's results to interested individuals.

NMSC RESEARCH ADVISORY COMMITTEE

Kenneth E. Clark, Chairman
Dean, College of Arts and Sciences
University of Rochester

Howard F. Hunt
Professor of Psychology
New York State Psychiatric Institute

E. Lowell Kelly
Professor of Psychology
University of Michigan

William G. Mollenkopf
Associate Manager, Personnel Administration
The Procter and Gamble Company

Peter H. Rossi
Chairman, Department of Social Relations
Johns Hopkins University

NMSC research is currently supported by grants from the National Science Foundation and the Ford Foundation.

ABSTRACT

A sample of college freshmen (N=127,125) was grouped by father's occupation. Fathers' occupations were then compared in terms of the probability of the sons and daughters having attained various types of achievements--scientific, artistic, oral, leadership, musical, and literary--in high school. The results indicated that sons and daughters excel in particular skills which the father uses in his occupation.

PATERNAL INFLUENCE ON TALENT DEVELOPMENT

Charles E. Werts[1] and Donivan J. Watley

In discussing the determinants of career choice, Caplow (1954) distinguished between a son's "inheritance" of his father's particular occupation and "inheritance" of his father's occupational level. He suggested that the latter influence functions primarily through the narrowing of sons' potential occupational choices, and that it might be studied in relation to social class mechanisms which tend to restrict the range of one's alternatives. While a father's specific interests may lead to both direct and indirect encouragement of similar interests in his son, the more general effects associated with the class level of the father's occupation may serve to limit the "permissible" or acceptable choices of his son.

It seems to make sense that the successful cultivation of particular skills in sons may help to promote interest in the general class of occupations which make use of these skills. Do sons and daughters in fact tend to develop skills that are important in their fathers' occupations? The purpose of this study is to examine the relationship between the occupations of fathers and the types of skills developed by their children, as indicated by success in high school achievement.

METHOD

Subjects

The subjects were 127,125 students entering 248 four-year colleges and universities in the fall of 1961. With few exceptions, these students included the entire freshman class at each institution. The colleges were chosen to include a wide variety of types of institutions in all regions of the United States. Details of the college selection procedure were given by Astin (1965) in a study initiated at the National Merit Scholarship Corporation.

---

[1] Dr. Werts is now at Educational Testing Service, Princeton, New Jersey.

Procedure

Each student filled out a short information form which included the following questions:

1. Circle one: Male Female

2. Father's occupation: _____

3. Indicate whether you have achieved any of the following by underlining the appropriate words. On the line before any item you underline, indicate the number of times you have achieved it.

   First, second, or third place in: __school science contest; __regional or state science contest; __national science contest.

   __leads in high school or church sponsored plays; __first, second, or third in regional or state speech or debate contest; __first, second, or third in national speech or debate contest.

   __elected to one or more student offices; __elected president of my class; __received award or special recognition for leadership of any kind.

   __participated in national music contest; receiving a rating of "good" or "excellent" in: __state music contest; __national music contest.

   __won a prize or award in art competition (sculpture, ceramics, painting, etc.); exhibited or performed a work of art (painting, musical composition, sculpture) at: __my school; __place other than my school.

   __edited school paper or literary magazine; __had poems, short stories, or articles published in public newspaper or magazine (not school paper) or in state or national high school anthology; __won literary award or prize for creative writing.

Fathers' occupations were ranked on the basis of the likelihood of sons achieving in a particular area. Separate rankings were made for daughters because (a) fathers influence on the interest patterns of their sons is probably not the same as it is on their daughters' interests; (b) groups of male and female college freshmen are not comparable with respect to fathers' occupations (Werts, 1968), and (c) patterns of extracurricular high school achievements are different for males and females.

In making the rankings, six relative probability scores--one for each of six areas of achievement--were computed for each type of occupation in which fathers were employed. The following formula was used:

$$Pr = \frac{p1 + p2 + p3}{P_1 + P_2 + P_3}$$

Pr = probability of sons achieving relative to the average achievement rate in this area

where p_1 = percentage of sons checking the first time in that area

p_2 = percentage of sons checking the second time in that area

p_3 = percentage of sons checking the third time in that area

P_1 = percentage of total sample checking the first item in that area

P_2 = percentage of total sample checking the second item in that area

P_3 = percentage of total sample checking the third item in that area

Three items were presented in each achievement area and this formula appropriately weighted each item in proportion to the number of persons checking it. The most frequently checked items gave the most reliable rankings of fathers' occupations; thus they were most heavily weighted. The resulting score was interpreted as the probability of sons achieving in a given area relative to the average achievement rate in that area (e.g., a ratio of 3.0 meant that a given group of sons was three times more likely than the average to achieve in that particular area).

For each of the six areas of achievement--scientific, oral, leadership, artistic, musical, and literary--a table was constructed showing fathers' occupations ranked by relative probability score. Because the sample included one-half again as many males (N=76,015) as females (N=51,110), the rankings for males tended to be more reliable.

Results

Tables 1 through 6 list fathers' occupations and the probability that their sons and daughters achieved in each of six areas. The relative probability ratios in each area provide a highly skewed distribution, most scores clustering close to the average and a few being markedly higher. For each of the six achievement areas, most of the deviantly high ratios are for fathers' occupations which have apparent similarities to the particular skill shown by their sons. Table 1 shows, for example, that the more scientific the fathers' occupations, the more likely the sons were to achieve in science (e.g., physicists' sons and

Table 1

Father's Occupation Ranked by Probability of Sons achieving in Science

Father's Occupation	Number of Fathers		Percentage of Achievers Item Number						Relative Probability Ratio	
			Male			Female				
	Males	Females	1	2	3	1	2	3	Males	Females
Physicist	71	67	25.4	8.5	1.4	20.9	10.5	3.0	2.7	3.5
Biological scientist	63	24	20.6	11.1	1.6	12.5	8.3	0.0	2.5	2.1
Psychologist	44	42	15.9	11.4	0.0	11.9	2.4	0.0	2.1	1.5
Scientist, nec[a]	260	272	15.4	7.7	0.8	8.1	6.3	0.0	1.8	1.5
College professor	672	602	15.2	8.0	0.6	9.5	6.2	1.0	1.8	1.7
Chemist	349	277	13.2	9.7	0.9	11.6	4.7	0.0	1.8	1.7
College administrator	153	138	16.3	5.9	0.0	5.8	1.5	0.0	1.7	0.7
Architect	179	163	14.5	7.3	0.0	9.2	5.5	0.0	1.7	1.5
Engineer	2,558	2,155	13.8	6.8	0.7	9.4	4.4	0.4	1.6	1.4
Teacher administrator[a]	481	433	15.0	4.6	0.4	10.9	6.2	0.0	1.5	1.7
Teacher	1,145	921	12.3	5.9	0.6	7.3	2.5	0.1	1.4	1.0
Technical worker	877	584	12.3	5.6	0.7	6.2	2.9	0.2	1.4	0.9
Social worker	92	76	10.9	6.5	1.1	7.9	1.3	0.0	1.4	0.9
Professional, nec[a]	1,039	824	12.0	5.9	0.2	9.2	4.3	0.2	1.4	1.4
Physician	1,917	1,562	11.8	5.2	0.4	9.5	4.1	0.3	1.3	1.4
Paramedical professions[a]	557	435	10.8	4.7	0.4	6.7	2.3	0.0	1.2	0.9
Dentist	404	333	9.9	4.7	0.0	6.9	3.6	0.9	1.1	1.2
Artist	340	238	9.4	4.1	0.6	9.2	5.0	0.4	1.1	1.5
Skilled worker	2,777	1,623	10.1	3.6	0.2	7.2	2.7	0.1	1.1	1.0
Clergyman	805	663	11.3	2.5	0.0	6.5	2.3	0.0	1.0	0.9
Military officer	556	429	10.8	2.9	0.0	8.4	3.0	0.0	1.0	1.2
Accountant	1,399	1,009	9.2	4.0	0.4	7.0	3.3	0.0	1.0	1.1
Writer	333	247	9.3	4.2	0.0	5.3	2.0	0.0	1.0	0.7
Lawyer	1,433	1,125	9.2	4.0	0.1	8.2	2.5	0.3	1.0	1.1
Businessman	17,531	12,625	9.5	3.5	0.3	6.4	2.5	0.2	1.0	0.9
Clerical worker	2,706	1,635	9.1	3.5	0.2	6.4	2.0	0.1	1.0	0.9
Salesman	6,067	3,920	8.9	3.3	0.2	6.5	2.9	0.2	0.9	1.0
Semiskilled worker	5,472	3,055	8.7	3.2	0.2	6.0	1.9	0.1	0.9	0.8
Foreman	1,389	743	9.1	2.0	0.1	7.4	2.7	0.0	0.9	1.0
Actor, musician	103	79	7.8	2.9	0.0	3.8	2.5	0.0	0.8	0.7
Laborer	3,235	1,711	7.1	2.5	0.2	5.1	1.9	0.1	0.7	0.7
Farmer	5,597	3,521	7.3	1.7	0.1	4.9	1.8	0.0	0.7	0.7
Elected official	179	146	7.8	0.6	0.6	8.2	2.7	0.0	0.7	1.1
Service worker	940	531	6.4	2.3	0.1	8.3	2.6	0.2	0.7	1.1
Total Sample	76,015	51,110	9.4	3.5	0.3	6.9	2.7	0.2		

Note.--The 3 science items refer to awards in (1) high school, (2) state, and (3) national contests. For example, 25.4% of physicists' sons won high school science awards, 8.5% state awards, and 1.4% national awards. The relative probability is the ratio of the achievement rate of these sons to the average rate for the whole sample, weighted across the 3 science items. Thus, sons of physicists are 2.7 times more likely than the average to win science awards.

[a] nec = not elsewhere classified
Teacher administrator includes primary and secondary school administrative personnel.
Paramedical professions includes pharmacists, optometrists, osteopaths, and chiropractors.

Table 2

Father's Occupation Ranked by Probability of Sons Achieving in Speech and Drama

Father's Occupation	Number of Fathers		Percentage of Achievers Item Number						Relative Probability Ratio	
			Male			Female				
	Males	Females	4	5	6	4	5	6	Males	Females
Clergyman	805	663	40.6	9.9	0.8	39.4	6.2	0.2	1.9	1.4
College administrator	153	138	36.6	5.9	0.7	36.2	4.4	0.0	1.6	1.2
Farmer	5,597	3,521	34.8	7.4	0.3	39.9	10.3	0.2	1.6	1.5
Actor, musician	103	79	33.0	6.8	0.0	30.4	5.1	0.0	1.5	1.1
Teacher administrator	481	433	30.8	7.9	0.2	38.3	7.4	0.5	1.4	1.4
Biological scientist	63	24	31.8	3.2	0.0	29.2	8.3	0.0	1.3	1.1
Teacher	1,145	921	24.6	6.6	0.1	29.5	7.0	0.4	1.2	1.1
College professor	672	602	25.5	5.4	0.2	29.1	6.2	0.5	1.1	1.1
Professional, nec	1,039	824	24.0	6.0	0.2	26.0	6.2	0.1	1.1	1.0
Lawyer	1,433	1,125	22.5	6.1	0.4	27.8	6.9	0.4	1.1	1.1
Elected official	179	146	22.9	4.5	0.6	30.8	7.5	0.0	1.0	1.2
Scientist, nec	260	272	21.5	5.8	0.0	27.6	5.9	0.0	1.0	1.0
Paramedical professions	557	435	21.9	5.2	0.0	34.8	6.7	0.0	1.0	0.9
Physician	1,917	1,562	21.1	5.2	0.3	26.2	6.5	0.3	1.0	1.0
Chemist	349	277	22.6	3.7	0.0	23.5	2.2	0.0	1.0	0.8
Businessman	17,531	12,625	21.4	4.7	0.2	27.0	5.7	0.2	1.0	1.0
Laborer	3,235	1,711	22.4	3.7	0.2	26.2	5.7	0.1	1.0	1.0
Clerical worker	2,706	1,635	22.0	4.7	0.2	27.9	6.4	0.2	1.0	1.0
Salesman	6,067	3,920	21.0	4.4	0.3	25.4	5.2	0.2	0.9	0.9
Military officer	556	429	20.5	4.7	0.0	26.1	8.9	0.2	0.9	1.1
Psychologist	44	42	25.0	0.0	0.0	21.4	2.4	0.0	0.9	0.7
Social worker	92	76	19.6	5.4	0.0	22.4	4.0	0.0	0.9	0.8
Engineer	2,558	2,155	20,8	3,9	0,3	22,5	3,9	0,1	0,9	0,8
Foreman	1,389	743	21.5	3.2	0.2	25.2	5.5	0.0	0.9	0.9
Artist	340	238	19.7	3.8	0.0	23.1	5.5	0.4	0.9	0.9
Semiskilled worker	5,472	3,055	19.9	3.4	0.1	24.4	5.0	0.2	0.9	0.9
Writer	333	247	19.5	3.3	0.3	34.4	8.9	0.4	0.9	1.3
Technical worker	877	584	18.9	3.7	0.1	20.2	2.6	0.3	0.8	0.7
Architect	179	163	17.3	4.5	0.6	23.3	3.7	0.0	0.8	0.8
Skilled worker	2,777	1,623	18.8	3.3	0.2	25.4	5.0	0.4	0.8	0.9
Accountant	1,399	1,009	17.7	3.6	0.1	22.7	4.7	0.1	0.8	0.8
Physicist	71	67	16.9	4.2	0.0	16.4	7.5	0.0	0.8	0.7
Dentist	404	333	17.6	3.0	0.3	27.3	4.2	0.3	0.8	1.0
Service worker	940	531	17.0	2.8	0.6	24.3	4.7	0.6	0.8	0.9
Total Sample	76,015	51,110	22.3	4.6	0.2	27.3	5.8	0.2		

Note.--The 3 speech and drama items refer to (4) lead roles in high school or church sponsored plays, (5) awards in regional or state speech or debate contests, and (6) awards in national speech or debate contests. For example, 40.6% of clergyman's sons had leads in plays, 9.9% won awards in regional or state contests, and 0.8% won national awards. The relative probability is the ratio of the achievement rate of these sons to the average rate for the whole sample, weighted across the 3 speech and drama items. Thus, sons of clergymen are 1.9 times more likely than the average to win this kind of recognition.

daughters had several times the average rate of science achievement). In Table 2, fathers whose professions required high oral skills (e.g., clergymen, college administrators, actors, teacher administrators, teachers, college professors, lawyers, and elected officials) tended to have sons who also excelled in oral achievement.

Table 3 shows that fathers who filled positions of leadership (e.g., teacher administrators, college administrators, clergymen, elected officials, teachers, college professors, and lawyers) had sons who excelled in leadership achievement. Interestingly, the sons of scientists generally ranked low on leadership achievement.

Although no obvious ordering of fathers' occupations was evident for musical achievement (Table 4), Table 5 reveals that fathers whose occupations required artistic skills (e.g., architects and artists) had sons who achieved well in art. It can be seen from Table 6 that fathers who needed literary skills (e.g., writers, college administrators, college professors, psychologists, and lawyers) also had sons with high rates of literary achievement.

Rankings in the scientific, artistic, and literary achievement areas suggested that: (a) fathers' occupations which clustered just above the average tended to be on professional and semiprofessional levels; (b) fathers' occupations on the skewed or high end of the distribution were on a similar occupational level; and (c) fathers' occupations just below the average were inclined to be those generally low on SES factors (e.g., farmer, laborer, skilled, semiskilled, service, and clerical workers). Farmers' children on the other hand, were consistently high in oral, leadership, and musical achievement.[2]

---

[2] Another approach to measuring general SES effects on these achievements would be to use father's education as a measure of the level of father's occupation. For the three areas (literary, scientific, and artistic) in which a class effect was noted above, the biserial correlations were .11, .10, and .09 respectively. The small size of these correlations corresponded to the close clustering of most of the probability ratios close to the average. Those areas (oral, leadership, and musical) for which no SES effect was noted all had biserial r's of .04. Controls for high school grade average did not affect the size of these correlations. One suspects that a class effect might exist for these achievements along with the community size effect, but the data showed no correlation for SES with these achievements because community size is associated with SES.

Table 3

Father's Occupation Ranked by Probability of Sons Achieving in Leadership

Father's Occupation	Number of Fathers		Percentage of Achievers Item Number						Relative Probability Ratio	
	Males	Females	Male			Female			Males	Females
			7	8	9	7	8	9		
Teacher administrator	481	433	48.7	22.0	43.9	58.2	7.2	53.4	1.5	1.3
Farmer	5,597	3,521	49.5	26.5	33.5	59.2	13.1	39.5	1.4	1.2
College administrator	153	138	49.7	15.7	37.3	51.5	2.2	42.0	1.3	1.1
Clergyman	805	663	47.2	14.8	31.7	50.4	6.0	37.6	1.2	1.0
Elected official	179	146	40.8	15.1	32.4	58.2	6.2	40.4	1.1	1.2
Teacher	1,145	921	41.1	15.7	31.4	52.4	7.2	42.7	1.1	1.1
College professor	672	602	41.7	11.5	31.3	46.7	4.5	34.9	1.1	0.9
Lawyer	1,433	1,125	40,4	12,1	29,2	54,4	6,0	37,5	1,0	1,1
Physician	1,917	1,562	40,4	12,2	29,0	54,2	6,7	36,1	1,0	1,1
Laborer	3,235	1,711	36,6	14,6	27,5	47,6	8,0	35,9	1,0	1,0
Paramedical professions	557	435	37.2	12.4	29.1	46.7	6.7	33.6	1.0	1.0
Actor, musician	103	79	38.8	8.7	31.1	53.2	8.9	39.2	1.0	1.1
Dentist	404	333	38.6	11.6	28.0	56.8	7.2	36.3	1.0	1.1
Businessman	17,531	12,625	38.6	12.0	27.7	49.5	6.0	36.1	1.0	1.0
Professional, nec	1,039	824	37.6	11.3	29.2	50.0	6.1	35.2	1.0	1.0
Clerical worker	2,706	1,635	37.9	13.7	26.0	48.6	6.4	36.8	1.0	1.0
Social worker	92	76	34.8	12.0	29.4	46.1	4.0	32.9	1.0	0.9
Foreman	1,389	743	36.1	13.6	24.6	45.1	5.0	35.1	1.0	0.9
Salesman	6,067	3,920	36.5	10.6	26.7	47.8	4.9	34.5	0.9	1.0
Writer	333	247	35.7	10.5	26.7	49.0	6.5	38.5	0.9	1.0
Military officer	556	429	35.3	10.3	25.7	48.7	7.0	38.5	0.9	1.0
Service worker	940	531	33.7	11.4	26.1	44.4	6.4	37.7	0.9	1.0
Skilled worker	2,777	1,623	33,6	11,3	25,6	45,4	6,5	34,6	0,9	1,0
Chemist	349	277	33.8	8.0	28.1	41.2	2.9	37.9	0.9	0.9
Engineer	2,558	2,155	35.6	8.2	26.1	45.4	3.4	34.6	0.9	0.9
Scientist, nec	260	272	37.3	7.7	24.2	48.5	2.9	39.0	0.9	1.0
Semiskilled worker	5,472	3,055	32.8	12.3	24.0	45.0	5.7	32.9	0.9	0.9
Accountant	1,399	1,009	34.6	7.7	26.7	47.4	4.8	36.9	0.9	1.0
Psychologist	44	42	36.4	6.8	25.0	52.3	4.8	28.6	0.9	0.9
Artist	340	238	32.1	8.5	25.6	49.2	4.2	34.9	0.8	1.0
Technical worker	877	584	33.1	8.3	24.0	43.3	3.4	32.2	0.8	0.9
Architect	179	163	38.0	6.7	19.0	47.2	8.0	28.8	0.8	0.9
Biological scientist	63	24	31.8	4.8	27.0	33.3	4.2	37.5	0.8	0.8
Physicist	71	67	33.8	2.8	25.4	37.3	1.5	32.8	0.8	0.8
Total Sample	76,015	51,110	37.6	13.1	27.5	48.9	6.3	35.7		

Note.--The 3 leadership items refer to (7) election to one or more student offices, (8) election as president of class, and (9) award or special recognition for leadership of any kind. For example, 48.7% of teacher administrators' sons held student offices, 22.0% were class presidents, and 43.9% received awards or recognition for leadership. The relative probability is the ratio of the achievement rate of these sons to the average rate for the whole sample, weighted across the 3 leadership items. Thus, sons of teacher administrators are 1.5 times more likely than the average to excel in leadership achievement.

Table 4

Father's Occupation Ranked by Probability of Sons Achieving in Music

Father's Occupation	Number of Fathers		Percentage of Achievers Item Number						Relative Probability Ratio	
			Male			Female				
	Males	Females	10	11	12	10	11	12	Males	Females
Clergyman	805	663	2.6	15.9	1.7	3.8	21.3	1.8	1.9	1.6
College professor	672	602	2.1	14.4	1.0	3.7	18.9	1.3	1.7	1.4
Actor, musician	103	79	3.9	11.7	1.9	2.5	15.2	0.0	1.7	1.0
Teacher administrator	481	433	2.1	13.5	1.3	5.5	22.4	1.9	1.6	1.8
Physicist	71	67	0.0	15.5	0.0	6.0	13.4	3.0	1.5	1.3
Teacher	1,145	921	1.5	12.5	0.9	3.0	19.1	2.1	1.4	1.4
College administrator	153	138	2.0	11.8	0.7	2.2	10.9	1.5	1.4	0.9
Social worker	92	76	1.1	12.0	1.1	1.3	13.2	2.6	1.4	1.0
Farmer	5,597	3,521	1.7	11.8	0.5	2.4	20.9	1.0	1.3	1.4
Scientist, nec	260	272	1.5	11.2	0.4	4.0	11.8	2.2	1.3	1.1
Writer	333	247	1.2	10.5	0.6	2.8	11.3	0.4	1.2	0.9
Paramedical professions	557	435	1.3	9.7	0.7	2.1	17.0	1.2	1.1	1.2
Accountant	1,299	1,009	1.8	9.2	0.7	2.7	11.0	0.9	1.1	0.9
Technical worker	877	584	1.6	9.2	0.6	2.9	11.6	1.4	1.1	0.9
Psychologist	44	42	0.0	11.4	0.0	4.8	11.9	2.4	1.1	1.1
Physician	1,917	1,562	1.9	8.5	0.7	3.2	11.4	1.6	1.1	1.0
Clerical worker	2,706	1,635	1.2	8.9	0.5	3.1	14.7	1.4	1.1	1.1
Chemist	349	277	1.4	8.0	1.4	1.1	10.8	0.7	1.0	0.7
Professional, nec	1,039	824	1.1	9.0	0.8	3.8	13.0	1.5	1.0	1.1
Engineer	2,558	2,155	1.4	8.6	0.6	2.9	11.1	1.5	1.0	0.9
Salesman	6,067	3,920	1.8	7.9	0.7	3.0	11.9	1.3	1.0	1.0
Businessman	17,531	12,625	1.5	8.1	0.7	2.9	12.2	1.4	1.0	1.0
Elected official	179	146	2.8	7.3	0.0	5.5	15.1	1.4	1.0	1.3
Skilled worker	2,777	1,623	1.2	7.5	0.5	2.5	11.2	0.9	0.9	0.9
Lawyer	1,433	1,125	1.2	7.3	0.5	3.7	11.2	2.0	0.9	1.0
Foreman	1,389	743	1.4	7.0	0.2	2.0	11.7	0.7	0.8	0.8
Semiskilled worker	5,472	3,055	1.6	6.2	0.4	2.4	10.8	0.9	0.8	0.8
Laborer	3,235	1,711	1.3	6.3	0.5	1.6	10.1	0.8	0.8	0.7
Military officer	556	429	1.1	5.8	0.7	3.5	7.7	1.9	0.7	0.8
Service worker	940	531	1.0	6.1	0.4	2.5	10.6	0.6	0.7	0.8
Dentist	404	333	0.5	6.9	0.0	1.5	14.7	0.3	0.7	1.0
Artist	340	238	1.2	5.9	0.3	1.7	11.8	1.7	0.7	0.9
Architect	179	163	1.7	5.6	0.0	1.8	9.8	0.6	0.7	0.7
Biological scientist	63	24	0.0	6.4	0.0	0.0	8.3	0.0	0.6	0.5
Total Sample	76,015	51,110	1.5	8.3	0.6	2.9	12.8	1.3		

Note.--The 3 music items refer to (10) participation in national music contest, (11) rating of "good" or "excellent" in state contest, and (12) rating of "good" or "excellent" in national contest. For example, 2.6% of clergyman's sons participated in national music contests, 15.9% were rated "good" or "excellent" in state contests, and 1.7% won top ratings in national contests. The relative probability is the ratio of the achievement rate of these sons to the average rate for the whole sample, weighted across the 3 music items. Thus, sons of clergymen are 1.9 times more likely than the average to excel in musical achievement.

Table 5

Father's Occupation Ranked by Probability of Sons Achieving in Art

Father's Occupation	Number of Fathers		Percentage of Achievers Item Number						Relative Probability Ratio	
	Males	Females	Male			Female			Males	Females
			13	14	15	13	14	15		
Architect	179	163	9.5	8.4	10.1	16.6	21.5	19.0	2.5	2.3
Artist	340	238	8.8	9.4	9.1	12.2	16.4	12.6	2.4	1.7
Actor, musician	103	79	5.8	7.8	7.8	13.9	13.9	17.7	1.9	1.8
College professor	672	602	4.2	7.2	6.7	8.8	12.0	11.0	1.6	1.3
Clergyman	805	663	5.3	6.6	6.0	5.4	9.2	7.8	1.6	0.9
Teacher administrator	481	433	4.6	5.6	6.0	7.2	9.0	8.3	1.4	1.0
Scientist, nec	260	272	5.0	6.2	4.6	9.6	10.7	12.9	1.4	1.3
College administrator	153	138	5.2	4.6	5.9	10.9	14.5	8.0	1.4	1.3
Physician	1,917	1,562	4.2	5.6	4.5	8.1	11.5	9.4	1.3	1.2
Biological scientist	63	24	4.8	6.4	3.2	8.3	8.3	4.2	1.3	0.8
Professional, nec	1,039	824	3.8	5.4	4.8	8.7	12.4	10.0	1.2	1.2
Engineer	2,558	2,155	3.9	5.6	4.3	10.7	12.9	11.2	1.2	1.4
Writer	333	247	3.3	5.4	4.8	7.3	14.2	10.5	1.2	1.3
Lawyer	1,433	1,125	4.1	5.2	4.0	7.2	8.0	8.0	1.2	0.9
Paramedical professions	557	435	4.0	4.7	4.5	9.0	10.6	8.7	1.2	1.1
Teacher	1,145	921	3.0	5.4	4.7	6.6	9.9	9.6	1.2	1.0
Military officer	556	429	3.2	5.6	4.1	12.1	13.8	10.0	1.1	1.4
Technical worker	877	584	3.4	5.0	4.5	9.8	12.5	11.5	1.1	1.4
Physicist	71	67	2.8	5.6	4.2	3.0	10.5	7.5	1.1	0.8
Skilled worker	2,777	1,623	4.0	4.8	3.9	5.9	7.3	6.4	1.1	0.8
Accountant	1,399	1,009	3.9	4.2	4.2	8.4	10.7	9.7	1.1	1.2
Elected official	179	146	4.5	3.9	3.4	6.2	8.9	8.9	1.0	1.0
Businessman	17,531	12,625	3.4	4.6	3.6	7.7	10.0	8.5	1.0	1.1
Salesman	6,067	3,920	3.1	4.3	4.0	6.8	10.1	8.6	1.0	1.0
Social worker	92	76	2.2	6.5	2.2	1.3	5.3	1.3	1.0	0.3
Chemist	349	277	4.0	3.4	2.9	8.3	10.8	14.1	0.9	1.3
Semiskilled worker	5,472	3,055	3.3	3.7	3.2	5.2	8.3	6.9	0.9	0.8
Dentist	404	333	2.2	3.0	5.0	6.0	11.4	8.4	0.9	1.0
Clerical worker	2,706	1,635	3.2	4.0	3.0	6.0	8.3	7.3	0.9	0.9
Psychologist	44	42	2.3	2.3	4.6	16.7	21.4	19.1	0.8	2.3
Service worker	940	531	2.9	3.4	2.8	4.0	8.9	5.7	0.8	0.7
Laborer	3,235	1,711	2.9	3.2	2.1	6.0	6.9	5.7	0.7	0.7
Foreman	1,389	743	2.1	3.6	2.2	6.2	9.6	7.0	0.7	0.9
Farmer	5,597	3,521	2.0	2.4	2.2	3.6	6.1	6.0	0.6	0.6
Total Sample	76,015	51,110	3.4	4.4	3.6	7.1	9.6	8.2		

Note.--The 3 art items refer to (13) awards in art competition, (14) exhibition of work at school, and (15) exhibition at place other than school. For example, 9.5% of architects' sons won awards in art competitions, 8.4% exhibited work at school, and 10.1% exhibited at places other than school. The relative probability is the ratio of the achievement rate of these sons to the average rate for the whole sample, weighted across the 3 art items. Thus, sons of architects are 2.5 times more likely than the average to excel in artistic achievement.

Table 6

Father's Occupation Ranked by Probability of Sons Literary Achievement

Father's Occupation	Number of Fathers		Percentage of Achievers Item Number						Relative Probability Ratio	
	Males	Females	Male			Female			Males	Females
			16	17	18	16	17	18		
Writer	333	247	16.2	16.5	6.0	29.2	26.3	14.2	2.2	2.0
College administrator	153	138	11.8	15.7	9.8	16.7	21.0	6.5	2.1	1.3
College professor	672	602	11.5	12.5	6.4	17.9	18.3	11.3	1.7	1.4
Psychologist	44	42	11.4	15.9	2.3	23.8	14.3	7.1	1.7	1.3
Social worker	92	76	7.6	12.0	8.7	13.2	6.6	7.9	1.6	0.8
Lawyer	1,433	1,125	12.6	9.6	5.4	19.0	14.4	11.5	1.5	1.3
Actor, musician	103	79	13.6	6.8	6.8	15.2	17.7	6.3	1.5	1 1
Scientist, nec	260	272	10.0	9.6	6.9	17.3	14.3	8.5	1.5	1.2
Teacher administrator	481	433	11.2	8.1	6.9	18.9	13.9	9.2	1.5	1.2
Military officer	556	429	9.7	8.1	5.9	19.1	13.5	11.2	1.3	1.3
Clergyman	805	663	9.1	8.6	5.7	14.2	10.1	6.3	1.3	0.9
Physician	1,917	1,562	11.3	7.8	3.6	18.0	11.8	10.1	1.3	1.2
Dentist	404	333	9.9	8.2	4.5	19.5	12.0	5.7	1.3	1.1
Professional, nec	1,039	824	8.9	9.0	4.4	17.2	17.2	9.8	1.2	1.3
Elected official	179	146	12.9	6.2	2.8	17.1	17.1	6.9	1.2	1.2
Teacher	1,145	921	8.3	7.3	5.3	15.6	12.9	7.5	1.2	1.0
Architect	179	613	8.9	7.3	4.5	13.5	12.3	8.6	1.2	1.0
Accountant	1,399	1,009	8.5	7.3	4.9	15.3	12.1	8.9	1.2	1.1
Engineer	2,558	2,155	8.1	8.7	3.2	15.7	13.8	8.6	1.1	1.1
Paramedical professions	557	435	9.0	7.2	3.6	14.5	11.3	8.1	1.1	1.0
Artist	340	238	7.1	8.5	4.1	17.7	13.0	8.0	1.1	1.1
Biological scientist	63	24	9.5	6.4	3.2	20.8	8.3	20.8	1.1	1.5
Businessman	17,531	12,625	8.6	6.9	3.4	16.8	11.2	6.3	1.1	1.0
Salesman	6,067	3,920	8.1	6.5	3.2	15.3	12.1	6.5	1.0	1.0
Clerical worker	2,706	1,635	7.9	6.3	3.4	16.7	10.2	6.6	1.0	1.0
Chemist	349	277	8.0	6.3	2.9	15.2	9.4	7.2	1.0	0.9
Foreman	1,389	743	8.0	5.8	2.2	15.8	11.4	4.6	0.9	0.9
Service worker	940	531	6.2	6.3	3.0	13.8	10.7	5.8	0.9	0.9
Farmer	5,597	3,521	8.8	5.0	1.6	21.2	9.7	4.5	0.9	1.0
Laborer	3,235	1,711	7.5	5.1	2.5	15.3	8.2	4.6	0.9	0.8
Physicist	71	67	5.6	4.2	4.2	9.0	10.5	7.5	0.8	0.8
Semiskilled worker	5,472	3,055	6.6	5.0	2.2	14.2	9.4	5.1	0.8	0.8
Technical worker	877	584	6.6	4.7	2.4	13.9	10.6	7.2	0.8	0.9
Skilled worker	2,777	1,623	6.7	4.1	2.7	15.5	9.7	6.1	0.8	0.9
Total Sample	76,015	51,110	8.2	6.4	3.2	16.4	11.3	6.7		

Note.--The 3 literary items refer to (16) editing school paper or magazine, (17) any nonschool published paper, and (18) awa-d for creative writing. For example, 16.2% of writers' sons edited school papers or magazines, 16.5% had works published in public newspapers, magazines, or anthologies, and 6.0% won creative writing awards. The relative probability is the ratio of the achievement rate of these sons to the average rate for the whole sample, weighted across the 3 literary items. Thus, sons of writers are 2.2 times more likely than the average to excel in literary achievement.

Table 7

Correlation Matrix of Probability Scores for Various High School Achievements

		Males					
		Area of Achievement					
		Science	Oral	Leadership	Music	Art	Literary
Females: Area of Achievement	Science	.79	.00	-.26	.17	.20	.16
	Oral	-.30	.75	.74	.64	.17	.32
	Leadership	-.41	.74	.83	.54	-.10	.30
	Music	.10	.47	.54	.76	.15	.39
	Art	.08	-.26	-.08	-.15	.60	.28
	Literary	-.01	.43	.24	-.05	.33	.74

Note.--The probability scores given in Tables 1-6 were used to compute the correlations between the six high school achievement areas. Each correlation indicates to what degree children (classified by father's occupation) who do well in one area also do well in another area. The correlations above the diagonal are for sons and those below the diagonal for daughters. Within each achievement area, the scores for sons and daughters were correlated, yielding the correlations shown along the diagonal.

The relative probability scores for each occupation (Tables 1 through 6) were intercorrelated between different areas of achievement. The intercorrelations between achievement areas for males are shown above the diagonal and those for females below the diagonal in Table 7. The correlation between male and female scores with each area is along the diagonal. The male-female correlations indicated that the ordering of fathers' occupations was similar for daughters and sons. The lowest correlation between male and female rankings was in artistic achievement ($r = .60$) which may be ascribed in part to unreliability due to the small number of persons checking these achievements. In general, the rankings of father occupations on sons' artistic, scientific, and literary achievements had low correlations with each other or with the other three--oral, leadership, and musical--achievement areas. Oral, leadership, and musical achievement rankings were moderately intercorrelated.

The leadership and oral rankings in this study paralleled the findings in Davis' (1965) study of college graduates. Persons with various career choices differed in the importance they placed on the "opportunity to work with people

rather than things." Specifically, Davis found that graduates in engineering and the biological and physical sciences did not consider "people opportunities" important, which matched the finding in the present study that sons of fathers in these fields were low leadership achievers. His education majors considered "people" important, matching our finding concerning the high leadership achievement of sons of teachers and public school administrators. Finally, prospective physicians, lawyers, and businessmen were average on this dimension in Davis' study, corresponding to our result that fathers in these occupations had sons who were near average in leadership achievement.

Rosenberg's (1957) study of occupations and values yielded similar parallels, except for medicine, with both Davis' and the present findings. The same parallels held for oral achievement. "People-oriented" fathers seemed to have children who did well in high school achievements requiring skilled human interaction.

Why children of "people-oriented" fathers did well in musical achievement is unclear, although it is probable that most students checked these items because of their membership in the school orchestra or band. However, unusual musical talent is seldom the most important factor in band membership; most members likely see this as primarily serving a social function.

DISCUSSION

Fathers' occupations were first ordered by the percentage of sons and daughters with given achievements; this was done in order to derive a rationale for examining the relationship between children's achievement and fathers' occupations. The results suggest that, in general, sons attain high school achievements in areas (scientific, oral, leadership, musical, artistic, or literary) which require skills similar to those involved in their fathers' occupations. However, this conclusion is quite tentative.

Positive results are useful in the sense that they support a generally held belief that fathers do in fact influence their sons' career choices. On the other hand, because of the potential methodological problems involved (e.g., inadequate or irrelevant categorization of fathers' occupations, biased sampling of college students resulting in range restrictions, unreliability and contamination

resulting from use of a questionnaire, etc.), negative results could not have been interpreted as particularly strong evidence that no such father-son relationship exists. Although the literature does not suggest specific links between the interests of fathers and daughters, it was found nevertheless that daughters achievements did appear to be influenced by their fathers' occupational skills.

The use of a sample of entering college students was advantageous in a study like this one because academic ability differences have been found to be relatively small among college students from different social class backgrounds (Werts, 1967). The effect of this is that comparisons can be made among various fathers' occupations with ability essentially controlled. Thus, one could say, for example, that physicists' sons were 2.7 times (3.5 times for daughters) more likely to win science awards during high school than other students with similar academic ability.

Of the various occupations involved in this investigation, probably the most obvious one that did not fit the general trends found was farmer; farmers' children had very high oral, leadership, and musical achievement ratings. One explanation may be that farmers usually live in low population areas where schools are small. Barker and his associates (1964) consistently have shown that small schools (and small communities) provide children with more opportunities for extracurricular (especially social) activities than do large schools.

The results of this study seem to have relevance to the following points:

1. Fathers directly and/or indirectly encourage their sons to develop specific skills which the father himself has acquired; in turn, perhaps he also discourages those skills which he himself has not developed.

2. The structure of a community may channel children's talents in certain directions; for example, because of the relatively small number of students available, small schools and communities may find it easier to get young people to fill a greater variety of social roles than is the case in more densely populated areas.

3. The general life circumstances of children of affluent, educated parents appear to facilitate achievements in the literary, scientific, and artistic areas.

REFERENCES

Astin, A. W. Who goes where to college? Chicago: Science Research Associates, 1965.

Barker, R. G., & Gump, P. V. Big school, small school: High school size and student behavior. Stanford: Stanford University Press, 1964.

Caplow, T. The sociology of work. Minneapolis: University of Minnesota Press, 1954.

Davis, J. A. Undergraduate career decisions. Chicago: Aldine Publishing Co., 1965.

Rosenberg, M. Occupations and values. Glencoe, IL: The Free Press, 1957.

Werts, C. E. Career choice patterns. Sociology of Education, 1967, 40, 348-358.

Werts, C. E. A comparison of male vs. female college attendance probabilities. Sociology of Education, 1968, 41, 103-110.

PREVIOUS NMSC RESEARCH REPORTS

Number

Volume 1, 1965

NMSC Research Reports included in this volume are listed in the Review of Research, 1970, 6, No. 1.

Volume 2, 1966

1. Participants in the 1965 NMSQT, by R. C. Nichols.
2. Participants in the National Achievement Scholarship Program for Negroes, by R. J. Roberts and R. C. Nichols.
3. Career Choice Patterns: Ability and Social Class, by C. E. Werts (also in Sociology of Education, 1967, 40, 348-358).
4. Some Characteristics of Finalists in the 1966 National Achievement Scholarship Program, by W. S. Blumenfeld.
5. The Many Faces of Intelligence, by C. E. Werts (also in Journal of Educational Psychology, 1967, 58, 198-204).
6. Sex Differences in College Attendance, by C. E. Werts (also in Sociology of Education, 1968, 41, 103-110).
7. Career Changes in College, by C. E. Werts (also in Sociology of Education, 1967, 40, 90-95).
8. The Resemblance of Twins in Personality and Interests, by R. C. Nichols.
9. College Preferences of Eleventh Grade Students, by R. C. Nichols.
10. The Origin and Development of Talent, by R. C. Nichols (also in Phi Delta Kappan, 1967, 48, 492-496).
11. Tenth Annual Review of Research, by the NMSC Research Staff (superseded by the Review of Research, 1970, 6, No. 1).

Volume 3, 1967

1. Do Counselors Know When to Use Their Heads Instead of the Formula?, by D. J. Watley (also in Journal of Counseling Psychology, 1968, 15, 84-88).
2. Paternal Influence on Career Choice, by C. E. Werts, (also in Journal of Counseling Psychology, 1968, 15, 48-52).
3. The Effects of Feedback Training on Accuracy of Judgments, by D. J. Watley (also in Journal of Counseling Psychology, 1968, 15, 167-272).
4. Study of College Environments Using Path Analysis, by C. E. Werts.
5. Effects of Offers of Financial Assistance on the College-Going Decisions of Talented Students with Limited Financial Means, by N. C. Crawford, Jr.

Number

Volume 4, 1968

1. Career Progress of Merit Scholars, by D. J. Watley (also in Journal of Counseling Psychology, 1969, 16, 100-108).
2. Stability of Career Choices of Talented Youth, by D. J. Watley.

Volume 5, 1969

1. Career Decisions of Talented Youth: Trends over the Past Decade, by D. J. Watley and R. C. Nichols.
2. Analyzing College Effects: Correlation vs. Regression, by C. E. Werts and D. J. Watley (also in American Educational Research Journal, 1968, 5, 585-598).
3. A Student's Dilemma: Big Fish--Little Pond or Little Fish--Big Pond, by C. E. Werts and D. J. Watley (also in Journal of Counseling Psychology, 1969, 16, 14-19).
4. Outstanding Negro High School Students: A One-Year Followup, by K. Burgdorf.
5. Where the Brains Are, by R. C. Nichols.
6. Selecting Talented Negro Students: Nominations vs. Test Performance, by W. S. Blumenfeld.
7. Career or Marriage?: A Longitudinal Study of Able Young Women, by D. J. Watley.
8. Career Selection: Turnover Analysis and the Birds of a Feather Theory, by D. J. Watley, and C. E. Werts (also in Journal of Counseling Psychology, 1969, 16, 254-259).

Volume 6, 1970

1. Review of Research, by the NMSC Research Staff (included abstracts of all previous NMSC studies).
2. Able Black Americans in College: Entry and Freshman Experiences, by F. H. Borgen.
3. Merit Scholars and the Fulfillment of Promise, by D. J. Watley and Rosalyn Kaplan.
4. Paternal Influence on Talent Development, by C. E. Werts and D. J. Watley.

Available NMSC Research Reports may be obtained by writing to the Research Division, National Merit Scholarship Corporation, 990 Grove Street, Evanston, Illinois 60201